

**Abstract**

A gas stream containing e.g. molecular hydrogen is used for the regeneration of a catalyst for NO<sub>x</sub> and SO<sub>2</sub> removal from the flue gas of a gas turbine. In order to reduce the consumption of regeneration gas, the gas inlet is located between the SCOSO<sub>x</sub> catalyst (2) and the SCONO<sub>x</sub> catalyst (3). The regeneration gas leaves the catalyst chamber upstream of the SCOSO<sub>x</sub> catalyst and is recycled. For the regeneration of the SCONO<sub>x</sub> catalyst and to keep SO<sub>2</sub> containing gas from entering the SCONO<sub>x</sub> catalyst, a second regeneration gas inlet is located downstream of the SCONO<sub>x</sub> catalyst. The regeneration gas entering the catalyst chamber through this port passes the SCONO<sub>x</sub> (3) and the SCOSO<sub>x</sub> catalyst (2). The direction of the flow in the SCONO<sub>x</sub> catalyst can also be reversed. In another example, regeneration gas outlets are located both upstream of the SCOSO<sub>x</sub> and downstream of the SCONO<sub>x</sub> catalyst. But, only the regeneration gas from the SCONO<sub>x</sub> catalyst is recycled.